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## THE NEW MEXICAN EXPEDITION OF 1914—ASHMUNELLA.

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Few shells have been collected in the Mogollon range, in the western part of Socorro County, New Mexico, prior to the reconnaissance made by one of us and Mr. L. E. Daniels. The only *Ashmunella* known from there was *A. mogollonensis* Pils., collected by Prof. E. O. Wootton in 1900. In the limited time spent there last summer only a few canyons on the southwestern slope were explored, so that this paper, and those on the other genera to follow, may be regarded as a mere sketch of the snail fauna, to be filled out by further field-work. The localities mentioned may be found on the Mogollon Quadrangle of the U. S. Geological Survey Topographic Map, a rough tracing of which is given in Fig. 1, with the positions of collecting stations indicated by their serial numbers.

The affinities of the snails seem to be with the Chiricahuan fauna. The species of *Ashmunella* are different, but they have an unmistakable Chiricahuan appearance. This leads us to believe that they were evolved from the same ancestral species, which must have been in Pliocene times able to migrate over a great area now destitute of snails.

The gorges in the canyons of the south-west side of the Mogollon mountains were so narrow that the talus ran down to the edges of the stream, well shaded by the cliffs and the trees. Conditions were much alike with the different colonies except

in the item of shade, and in Dry Creek it was but a stone's throw from one colony to another for two or three miles. The small stone-fields with sufficient depth contained the most living examples, perhaps because these contained the shortest routes to the outside feeding grounds. Where the trees had

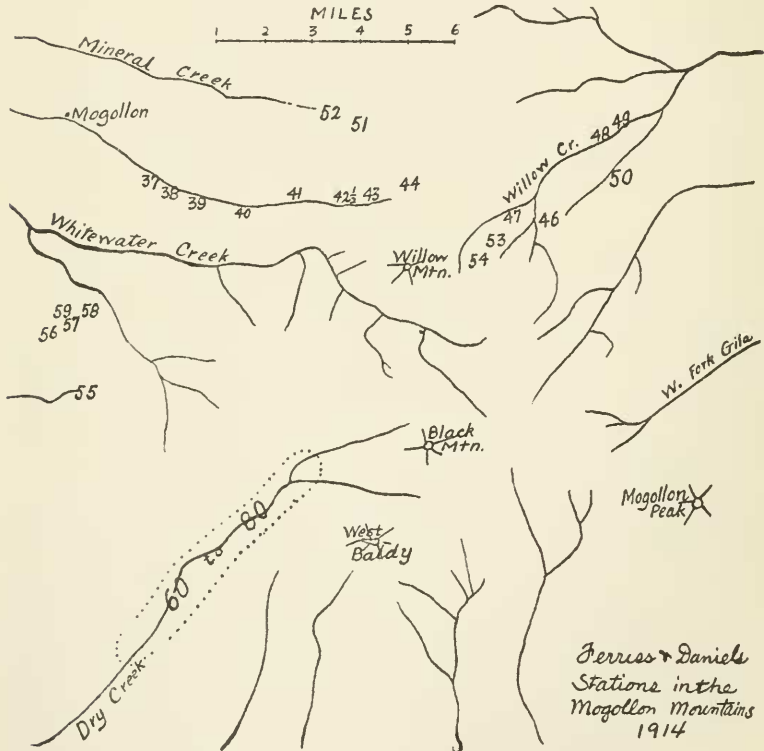


Fig. 1. Tracing reduced one-half from U. S. G. S. Topographic Map, Mogollon Quadrangle, edit. of June, 1912, showing locations of snail colonies, numbered 37 to 80.

fallen and let in the sun dead shells were numerous. In one thickly inhabited slide, no living specimens remained.

If one of the moulds or a mouse or a chipmunk family moves in, there is trouble in snaildom. Otherwise, with a well-drained rock pile, not too deep nor too shallow, a little leaf mould and

the shade of a gooseberry, an elderberry or a rose, there is snail happiness. Perhaps the small gnawers like some snails better for dinner than others, but it has not been proven. For weeks of collecting there may be no broken shells, but the next day, another range or canyon, dead and broken shells will be the rule. Very few broken *Oreohelix* were found in the summer of 1914, but in 1913 the same species of *Oreohelix* met with terrible slaughter from the gnawers; some colonies were entirely destroyed. A group of *Sonorellas* equipped with an offensive odor seem to be well protected. Of the thousands turned up in 1913 not more than half a dozen had been broken, and these were probably mistakes made by meat-eaters lacking in the knowledge of conchology.

ASHMUNELLA TETRODON n. sp. Plate 1, figs. 1, 2.

The shell is umbilicate, width of umbilicus contained nearly six times in the diameter of the shell; depressed, angular in front, the angle situated above the middle, and nearly or quite disappearing on the last third of the last whorl; spire and base convex; thin, cinnamon or cinnamon-brown above, fading on the base. The surface has a silky luster, and is very weakly marked with growth-lines; on the base some excessively weak spiral lines may be seen under strong magnification. There are  $5\frac{1}{2}$  convex, closely-coiled whorls, the last descending a little in front, having a deep, narrow constriction or gutter behind the peristome; behind this gutter it is rather swollen and distinctly striate. The umbilicus is cylindrical within, and enlarges at the last whorl. The aperture is very oblique; peristome white or pinkish, reflexed throughout, with a recurved edge, the face rounded. Outer margin bears a long, very slightly retracted, flat-topped or slightly notched tooth. Basal margin is armed with two marginal teeth, the outer one slightly larger. These two teeth are somewhat compressed laterally, and are yoked together by a callus on the edge of the broad lip. The spaces between the three teeth are about equal. The transparent parietal callous bears an obliquely radial tooth, set rather far in, and in old examples having the inner end slightly curved towards the basal lip. The outer end often has a low callus outwardly and sometimes one running in.

Young shells form a quite thin lip-callus at resting stages, but these seem to be absorbed subsequently, as no opaque streaks are visible in the adult stage.

Height 6.7, diam. 15 mm.

*Locality.*—A mile or two above the box of Dry Creek Canyon, Station 70, south slope of the Mogollon Mts. (4 miles south of the Little Whitewater station); elevation from 6000 to 7500 feet. Also at various stations mentioned below, in the same canyon.

#### EXPLANATION OF PLATES.

NOTE.—Figures on plate I, and figs. 1–3 on plate II, are  $1\frac{2}{3}$  natural size; figures 4–8 on plate II are natural size.

Plate I. Fig. 1. *Ashmunella tetrodon*. Type and paratypes. Station 72.

Fig. 2. *Ashmunella tetrodon*. Station 79.

Figs. 3, 3a. *Ashmunella tetrodon*. Variety with small parietal tooth. Station 60.

Fig. 4. *Ashmunella tetrodon mutator*. Station 60.

Fig. 5. *Ashmunella tetrodon mutator*. Type and paratypes. Station 80.

Fig. 6. *Ashmunella tetrodon mutator*. Station 67.

Fig. 7. *Ashmunella tetrodon inermis*. Type and paratypes. Station 69.

Plate II. Fig. 1. *Ashmunella danielsi*. Type and paratypes. Station 57.

Fig. 2. *Ashmunella danielsi dispar*. Type and paratypes. Station 55.

Fig. 3. *Ashmunella pilsbryana* Ferriss.

Fig. 4. *Sonorella peninsularis* Pils. Type. Lower California.

Fig. 5. *Sonorella ultima* Pils. Type. Sinaloa.

Fig. 6. *Epiphragmophora ellipsostoma* Pils. Type. Lower California (?).

Fig. 7. *Sonorella lioderma* Pils. Type. Lower California.

Fig. 8. *Sonorella lohrii* (Gabb). Type. Lower California.

(To be continued)